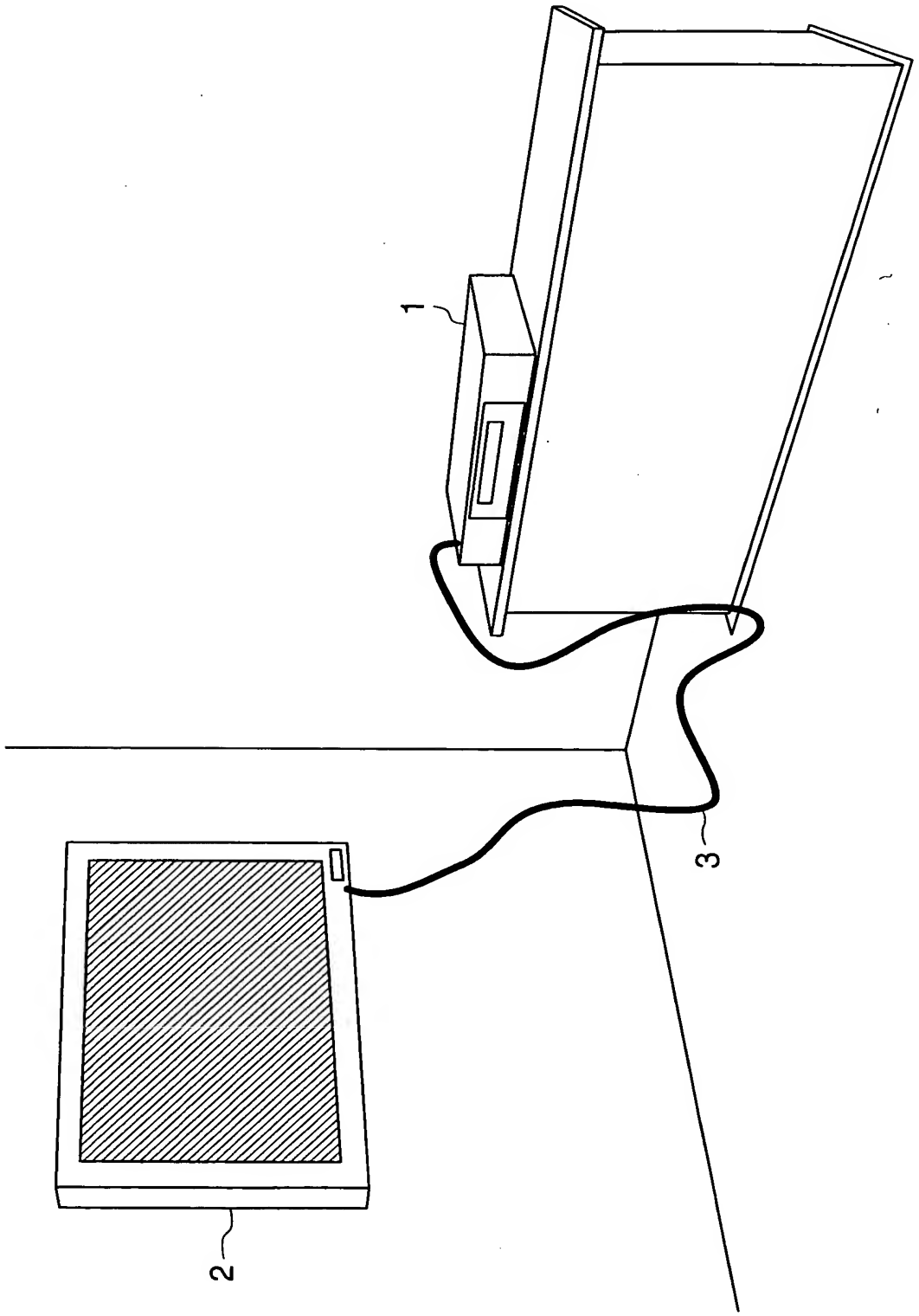

FIG. 1 (RELATED ART)

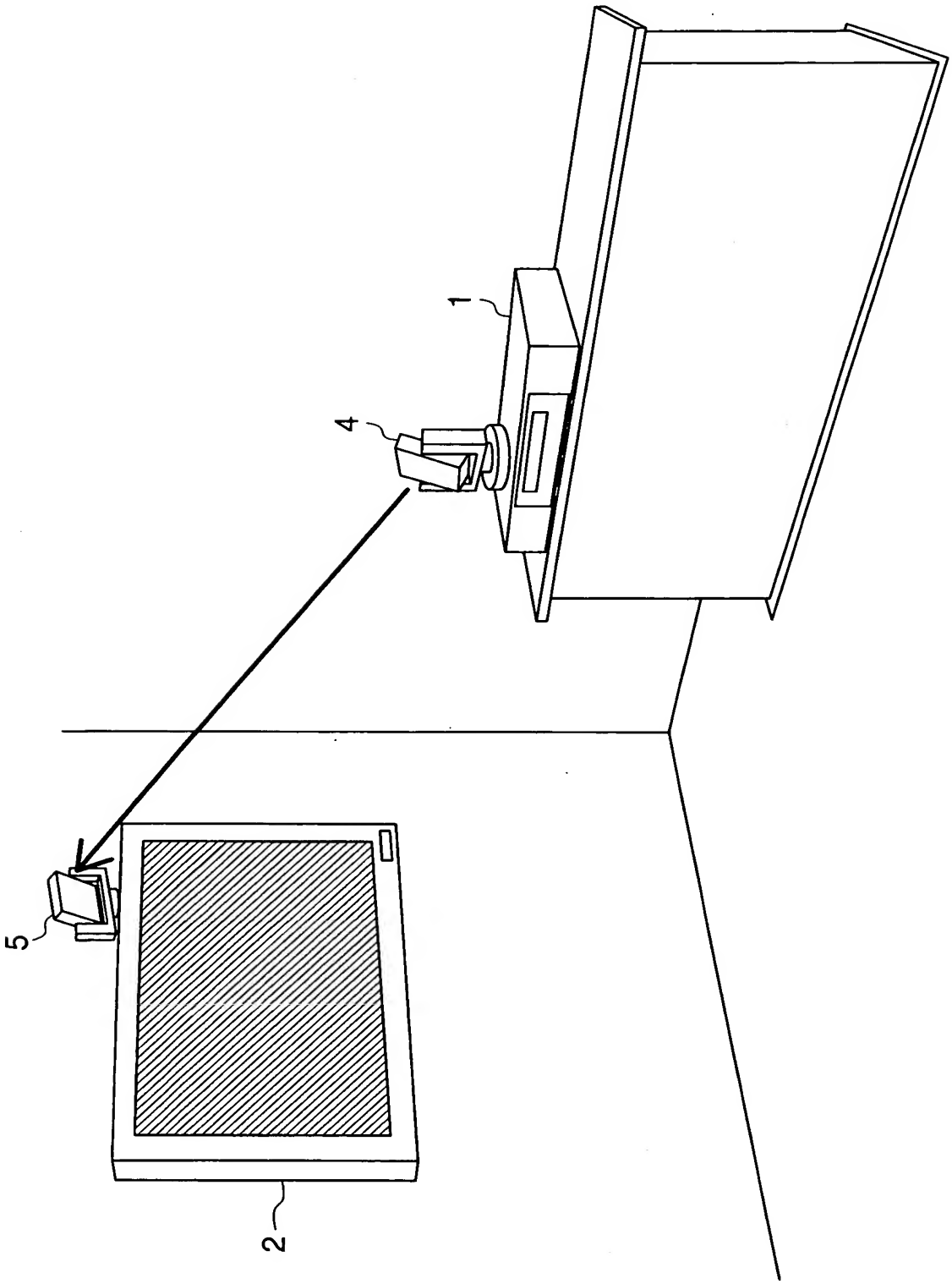

FIG. 2 (RELATED ART)

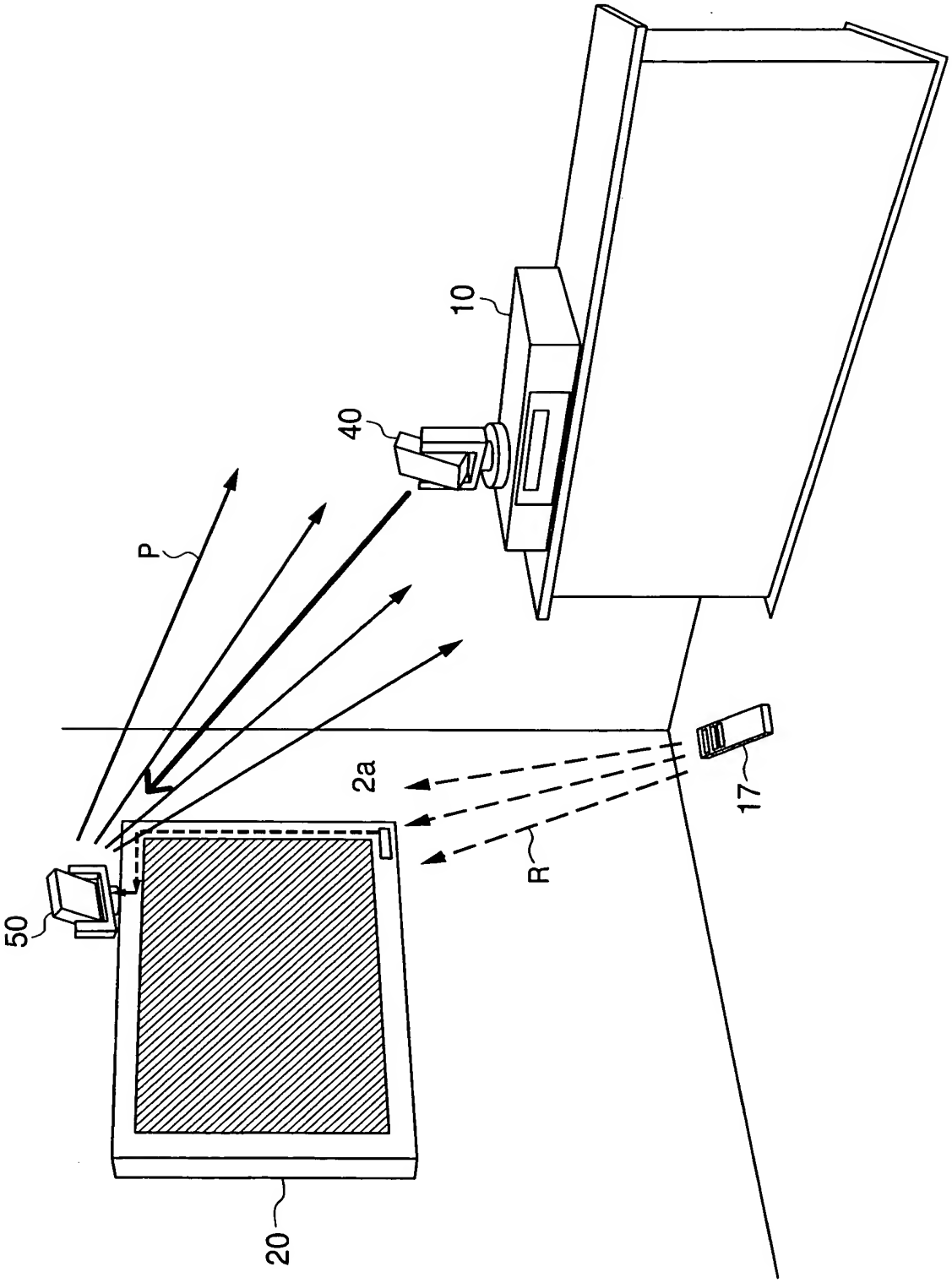

FIG. 3

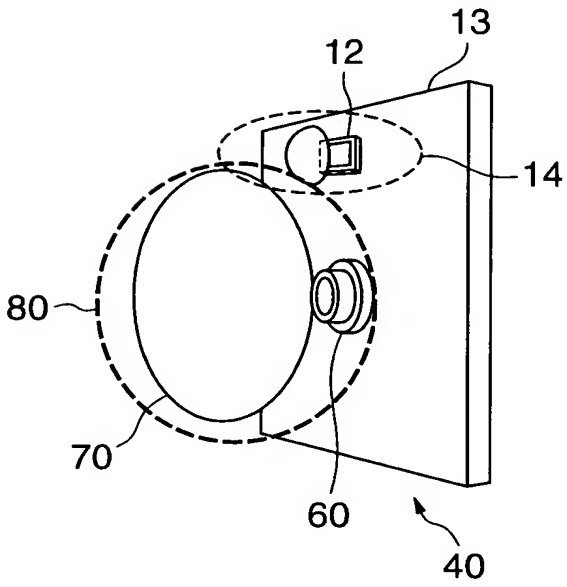

FIG. 4A

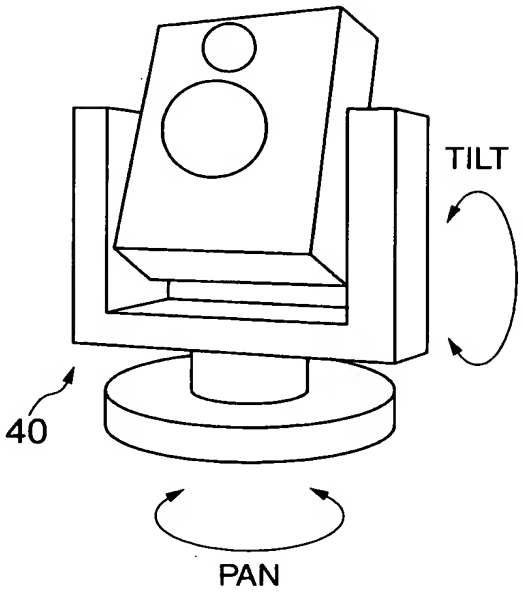

FIG. 4B

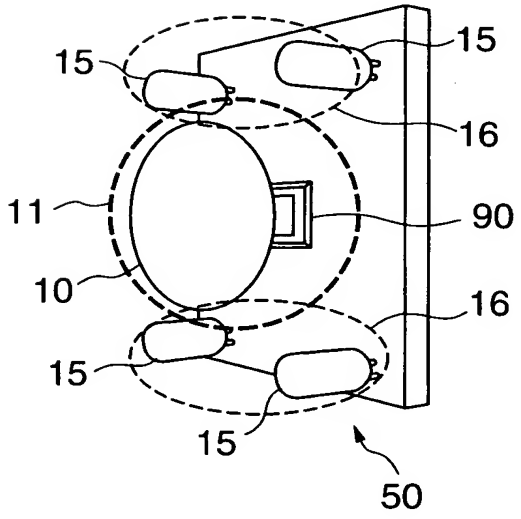

FIG. 5A

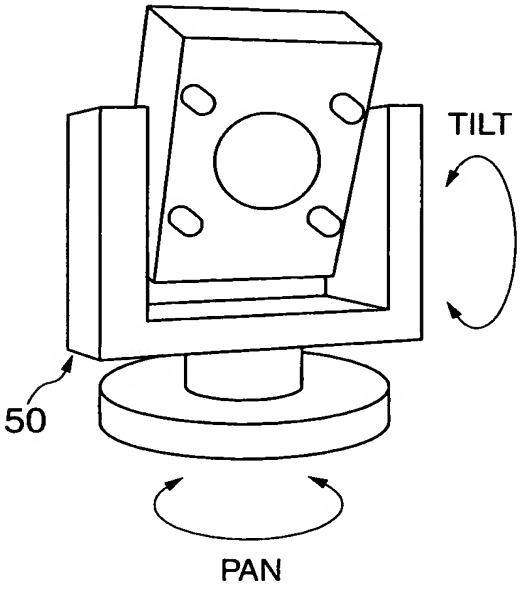

FIG. 5B

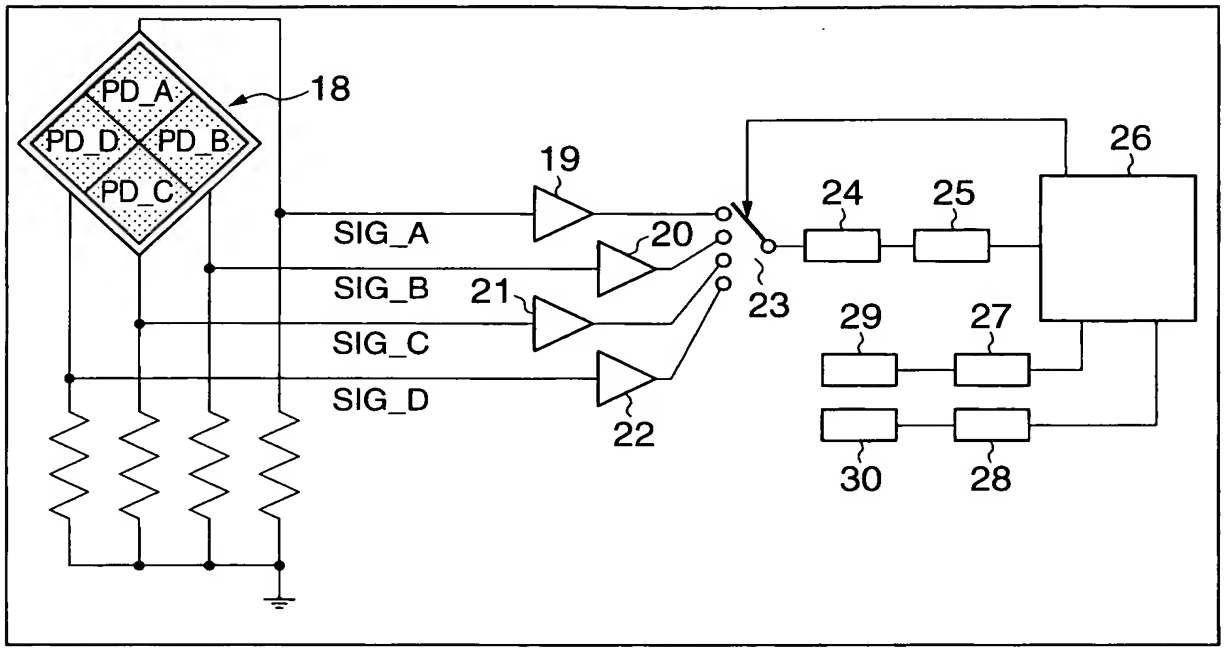
PD_A
PD_D
PD_B
PD_C
18
19
20
21
22
23
24
25
26
27
28
29
30
SIG_A
SIG_B
SIG_C
SIG_D

FIG. 6

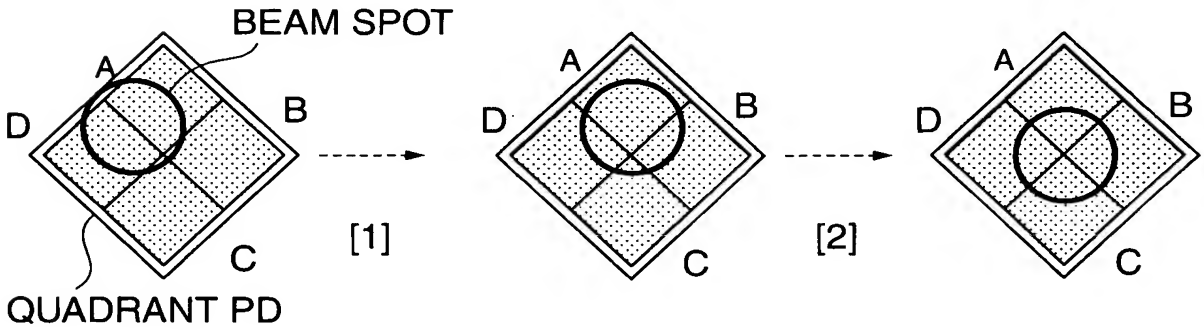
BEAM SPOT
A
B
C
D
QUADRANT PD
[1]
[2]

FIG. 7

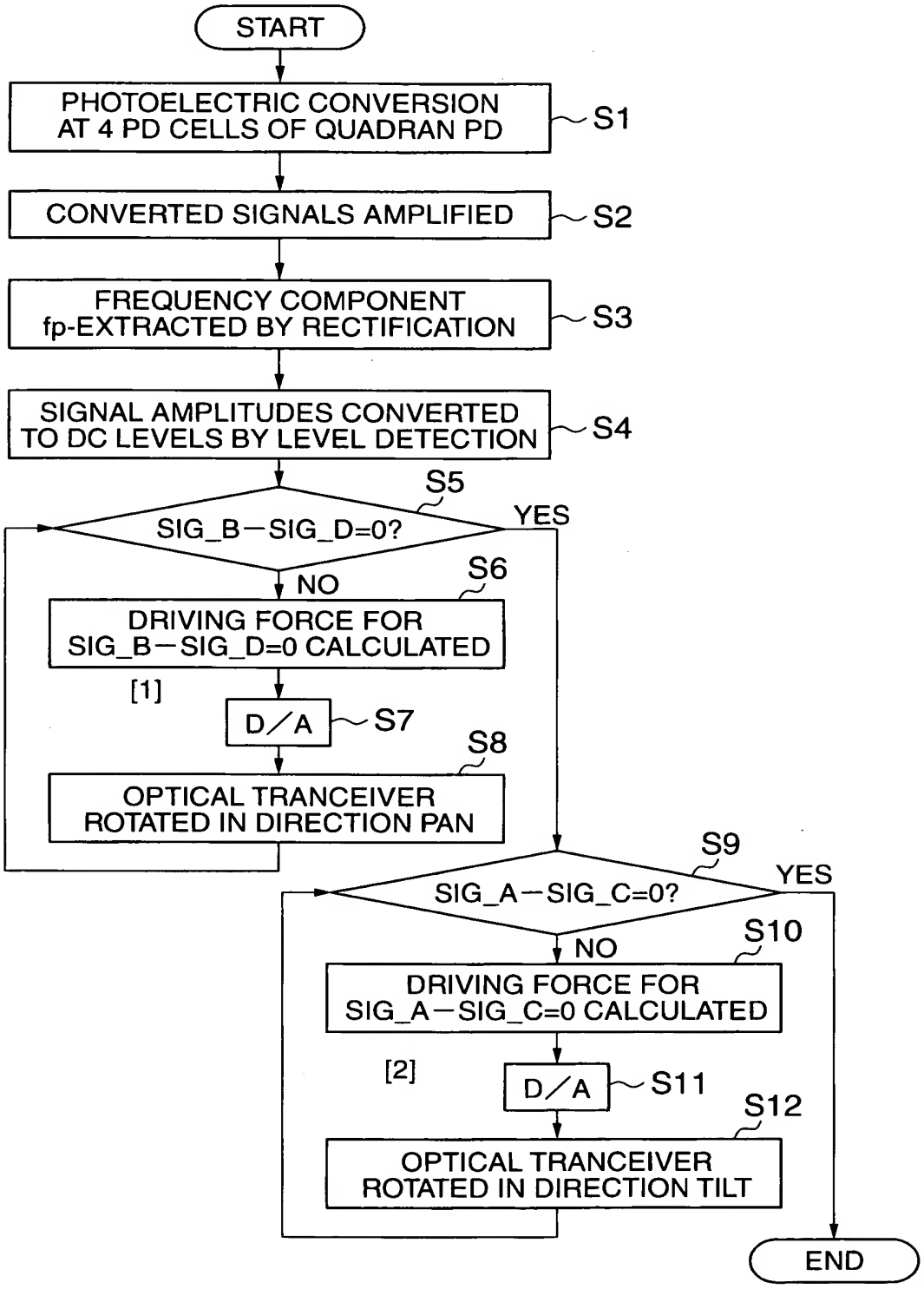
START
PHOTOELECTRIC CONVERSION AT 4 PD CELLS OF QUADRAN PD
S1
CONVERTED SIGNALS AMPLIFIED
S2
FREQUENCY COMPONENT fp-EXTRACTED BY RECTIFICATION
S3
SIGNAL AMPLITUDES CONVERTED TO DC LEVELS BY LEVEL DETECTION
S4
S5
SIG_B−SIG_D=0?
YES
NO
S6
DRIVING FORCE FOR SIG_B−SIG_D=0 CALCULATED
[1]
D/A
S7
S8
OPTICAL TRANCEIVER ROTATED IN DIRECTION PAN
S9
SIG_A−SIG_C=0?
YES
NO
S10
DRIVING FORCE FOR SIG_A−SIG_C=0 CALCULATED
[2]
D/A
S11
S12
OPTICAL TRANCEIVER ROTATED IN DIRECTION TILT
END

FIG. 8

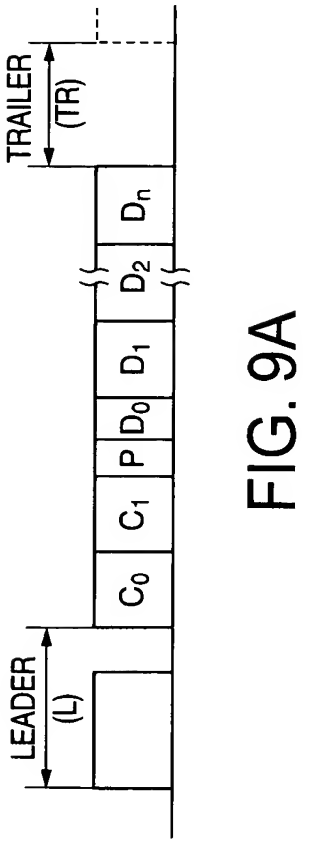

FIG. 9A

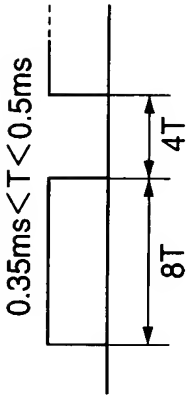

FIG. 9B

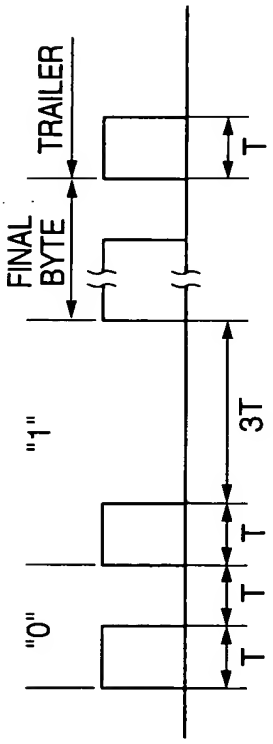

FIG. 9C

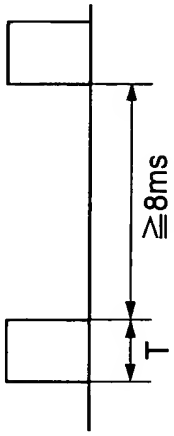

FIG. 9D

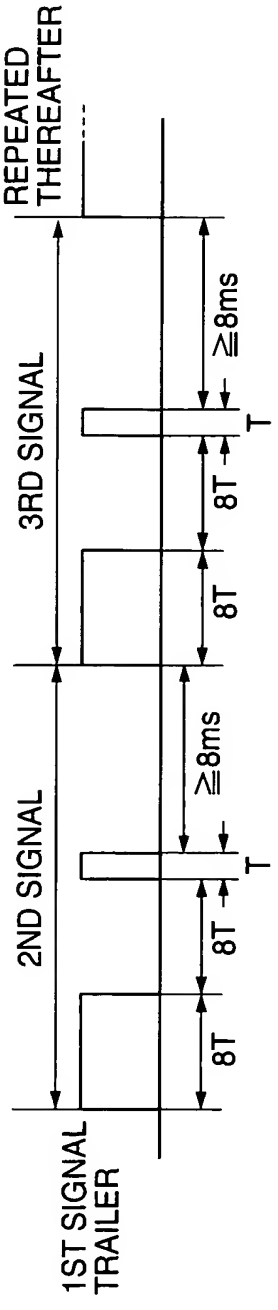

FIG. 9E

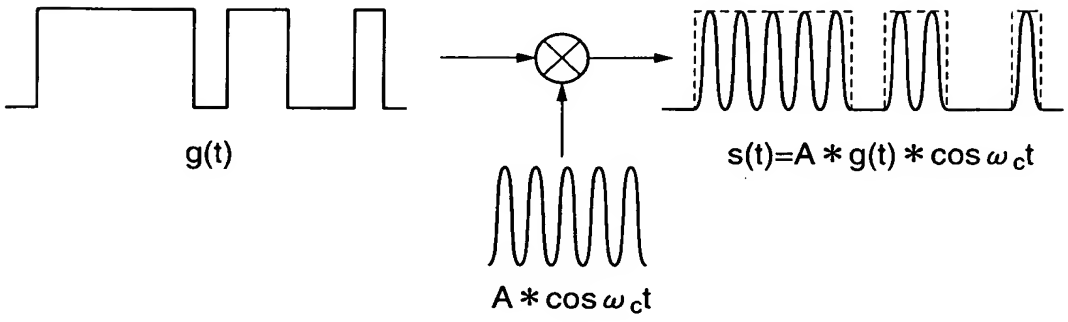

FIG. 10

NOISE:$n(t)=n_c(t) * \cos \omega_c t + n_q(t) * \sin \omega_c t$

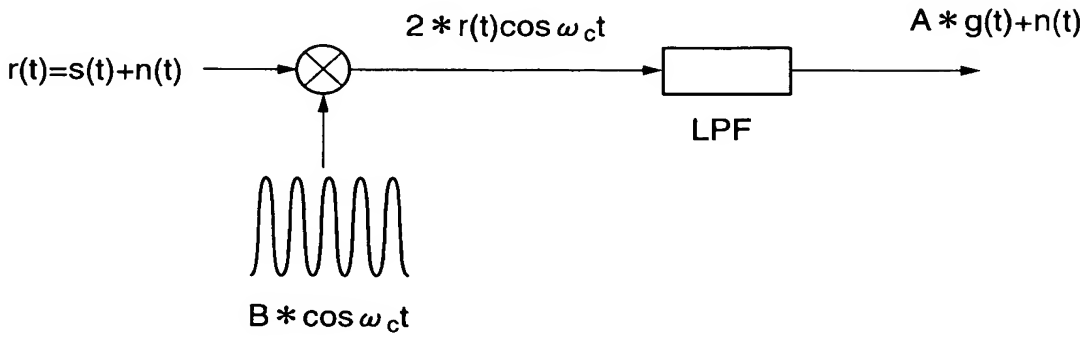

FIG. 11

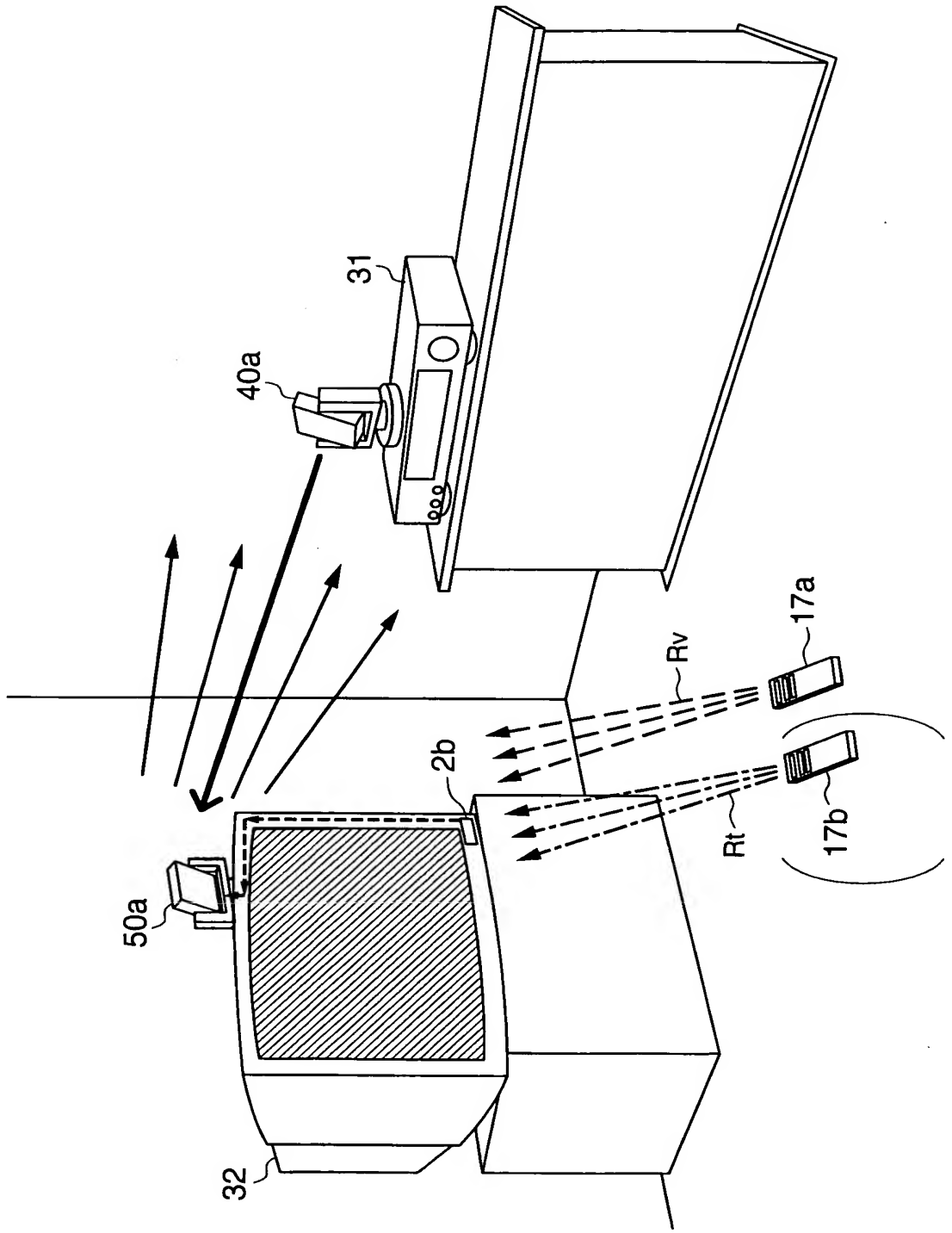

FIG. 12